Vol. 9. No. 7. **July 1900.**

Journal of the Amateur Photographic Society of Madras.

Patron.

H. E. Sir ARTHUR ELIBANK HAVELOCK, G.C.M.G., G.C.I.E.

President.

C. E. PHIPPS, Esq.

Vice-Presidents.

Hon. Mr. G. STOKES,
Major J. L. VAN-GEYZEL, I. M. S.

Committee.

E. W. STONEY, Esq.

A. PILKINGTON, Esq.
E. THURSTON, Esq.
Rev. A. MOFFAT.
A. CHATTERTON, Esq.

Honorary Secretary.

Mrs. LEET PALK.

Honorary Treasurer.

A. E. LAWSON, Esq.

CONTENTS.

	Page.
EDITORIAL NOTES	61
NOTES	62
OUR ILLUSTRATION	63
OUR HOME LETTERS	63
EXTRACTS:—Practical Colour Work for Amateurs; Slow v. Rapid Plates for Landscape; The Best Developer; Acetylene; Lantern-slide making for Beginners ...	65
RULES FOR COMPETITION, etc. ...	72

EDITORIAL NOTES.

WE publish two Home Letters—for May and June—this month. It certainly seems to interfere with the uniformity of the Journal to have one Home Letter in some numbers, two in some, and none in others. We cannot help this, however, as the Home Letter disappoints us as often by arriving a day too early as by coming a day too late for the printers. Our readers, we presume, would rather like to have the Home Letters as fresh as possible, even at the risk of having to go without one for an unusually long interval.

IT may interest our readers to know that the next Annual Exhibition, the 45th, to be held under the auspices of the Royal Photographic Society, will be held in the New Gallery, Regent Street, London, from October 1 to November 3. The Exhibition will be divided into five sections:—I. Selected Pictorial Photographs; II. General Professional Work; III. Photographic Apparatus and Material; IV. Photomechanical Processes of Reproduction; V. Scientific Photography and Photography in its technical application. Foreign and Colonial exhibitors may send unframed, but properly mounted, photographs. The Society will provide frames for accepted photographs gratis. The carriage to and from the Exhibition must be prepaid. Exhibits in Sections I, II (B), III (A), IV and V, together with the entry form properly filled up, must reach the Secretary R. P. S. on or before Septr. 11, 1900. No charges will be made to foreign and colonial exhibitors in Section 1.

DR. JOHANNES MEYER contributes a very interesting article on the New Phosphate of Silver paper to the June Number of the *Photographic Times*. This is a printing out as well as a developing out paper. The directions

which he gives for using this paper are: that the paper must not be over printed, that it should be transferred directly from the printing frame to an alkaline fixing bath of hypo one ounce, washing soda one drachm, and one quart of water in which it should be allowed to remain from 2—4 minutes, and that it should be then washed in running water. The prints are thus allowed to remain in a weak hyposolution for a very short time. The silver phosphate prints, says the writer, are as permanent as prints on any other paper.

THE March number of the *Photominiatur* is to hand. With this number the first volume of this new journal is completed. It is on Retouching Negatives and Prints, and is as interesting as ever. We most heartily congratulate the new journal on the remarkable success which has attended it, and hope that the second volume which is announced to begin with a monograph on "Photographing Flowers and Trees" will be worthy of its predecessor.

THE following extract from the June number of our Calcutta contemporary may be interesting to our readers:—

"We must confess our anticipation of a future good time with an endless supply of crisp contributions by members is only a feeble reflection of the hope that glows so brightly down Madras way. Our benighted brethren have not yet secured their "Editor and Demonstrator on Rs. 50 per month," but they have employed Mr. K. Ramunni Menon, B. A., as Editor on Rs. 30 per mensem, and as the weather is now in its hotter phase—in Madras the seasons are divided into the hot and the hotter—they have postponed the engagement of the Demonstrator till October next. They hope more strongly than we do and will not be happy till they attain their desires fully."

WHY are citrates not so much used as bromides as restrainers? That they could be used as restrainers was known many years ago. A writer in *Wilson's Photographic Magazine* suggests a two-fold reason—that the tendency now-a-days is to employ developers containing no restrainers at all, and that a bromide is as good as a citrate and more accessible. Of all citrates, ammonium citrate has the most marked effects upon the action of the developer. A ten per cent. solution of this, added to any developer, retards development to a much greater extent than the same strength of bromide. The plate, the development of which has been retarded by the use of a citrate, can be speedily developed by washing it under the tap and pouring on a developer free from the citrate. Immersion in the citrate bath does not seem to have any permanent effect on the plate.

NOTES.

SILVER stains on negatives are a constant worry to careless workers, and sometimes to careful ones. There is no absolutely certain cure. One of the best remedies is bichromate of potash, 10 grains; common salt, 40 grains; water, 2 ounces. Soak the plate in this for twenty minutes, then wash thoroughly and immerse in ammonium sulphocyanide, 40 grains; water, 2 ounces. Lastly, wash well.—*Wilson's Photographic Magazine.*

HOW TO PRINT A CRACKED NEGATIVE.—Either put printing frame at the bottom of a narrow box, two feet deep, with blackened sides, dropping a sheet of light tissue paper over the frame; or suspend from a roasting-jack a board upon which a printing frame can rest, the roasting-jack acting all the time of printing. No trace of crack should then be on the print.

PHOTOGRAPHING UPON MARBLE.—The following process for making photographic impressions upon marble has recently appeared, and is said to give very fine results. The surface of the marble is well smoothed but not polished. Upon this is spread a layer of the following mixture: Benzine, 500 grammes; turpentine, 500 grammes: bitumen 50 grammes; beeswax, 5 grammes. This layer is allowed to dry, and the gelatine surface of the photographic plate is then applied and an exposure of 20 minutes made by sunlight. After removing the plate wash with gasoline, which takes off that part of the varnish which has not been acted upon by the light, and the image gradually appears. The action of the gasoline is stopped at the desired point by washing in a stream of water. The surface thus prepared is plunged into an alcoholic solution of Prussian blue, eosine red, etc. When the color has penetrated by capillary action, the layer of varnish is taken off and the surface of the marble finely polished. In this way a permanent image of a fine color and great depth is obtained. —*Scientific American.*

RAICHORE FORT—2. BY MR. C. E. PHIPPS.

For our very interesting Illustrations this month, we are indebted to our President Mr. Phipps who has been kind enough to send us the following description :—

OUR ILLUSTRATION

is of the small mosque, and other buildings, on the top of the old Fort on the Raichore Rock. The fort has been the scene of many a fight, in which it is said Tippoo had his full share. Close by the spot shewn in the picture is an old cannon, mounted on a swivelling frame, the gun being about 20 feet long, and some 4 or 5 inches bore. It is formed of a large number of square iron bars, fastened together with hoops shrunk on around them, and although the breech has been blown out, it appears to have been so formed as to admit of breech-loading. Built into the wall of the Fort, leading up to the top, or rather the wall which bounds the path leading to the top, is a huge stone some 41 feet long, on which has been engraved an inscription in Sanskrit, recording that the wall was built in the 13th century. As will be seen in the photograph, the so-called Rock, is a mass of boulders of all sizes and shapes, jumbled together in hopeless confusion, and one can readily understand how a few resolute men could, without difficulty, have held it against a far larger body toiling up and around them.

The picture was taken in one of Shew's eclipse hand cameras, exposure ½ second, stop F22, and developed in Pyro and Soda Wratten and Wainright's ordinary plate.

OUR HOME LETTERS.

May 18th, 1900.

With the end of our exhibition season in this country, one's thoughts naturally turn to the new exhibitions which will take place during next winter. The two great shows, that of the Royal Photographic Society, and of the Photographic Salon seem to keep steadily on with fair prosperity, but I believe so far as the provinces are concerned, the difficulty of getting together good collections of pictures becomes greater every year. Medals are baits that catch certain exhibitors, others can only be tempted by the likelihood of disposing of their pictures, whilst a third class contribute to those larger exhibitions where mere prestige is sufficient attraction. But the exhibitor fish, like some of the genuine species, becomes more and more wary each season. Exhibition promoters will find it necessary to try fresh tactics; greater inducements, or the introduction of some novelty in arrangement. I can recommend a style of exhibition to smaller societies that might be found to work well, *i. e.*, an exhibition consisting entirely of prints mounted, but not framed. Photographs in this form are readily fastened to the walls of a room by means of drawing pins or wafers, or they can be effectively displayed upon tables covered with cloth or paper of suitable neutral tints. The prints should tastefully dispose in groups, preferably in an unsymmetrical manner, while small tickets may be endorsed with the name of the photographer, or he can simply place his visiting card alongside his prints. Albums of photographers are also quite apropos at a function of this kind. One cannot help feeling that exhibiting is so largely a labour of love, and brings so little advantage to the exhibitor, that there is grave danger of diminished interest on the part of the exhibitor. Perhaps I am too pessimistic, time will prove.

But though exhibitors may become scarcer, there is no sign of any cessation in the number of novices who take up photography. Here, there, and everywhere among young people especially, the art of the camera is becoming a necessary pursuit of leisure, whilst everywhere the needs of novices are catered for in a way that would surprise the fathers of photography, could they come back to this earth and see the present state of affairs. Even the great Kodak Company now give free lessons to any who care to ask for them Every day in the week instructions in the essential operations of photography may be had at their central depot in London, whilst a connected series of five lessons with illustrations and demonstrations in detail is given each week from Monday to Friday. Remembering the mistakes and experiments of my early days in photography, I can but regard these and other advantages of the present generation with feelings of envy.

Among recent patents I observe one for a trichromatic camera that no doubt will lead to considerable development of that particular work among amateurs. The inventor is Capt. W. N. Lascelles Davidson, and so far as one can gather from the description, the camera is a most ingenious instrument. I believe it will be put upon the market before very long. The three different images are taken by three separate lenses upon three plates 3¼ inches square, placed side by side in the same dark slide. In order that the same exposure may be given to each of the three images the apertures are adapted to the particular colour of the screen, the red being fitted with F 11, the green with F 22, and the blue F 32. Cadett's spectrum plates are employed. To bring each plate successively to the central position an ingenious movable base is brought into play, this base being moved and the exposure made by a pneumatic appliance enabling both operations to be accomplished with surprising rapidity. For copying, or direct subjects of nature not close at hand, this moving base-board need not be used, since the difference between the images is so slight as to produce no visible fault in the final trichrome. I have given the above description very briefly; those who wish to learn more of a camera that seems likely to popularize trichromatic photography will find what they seek in the patent specification.

I observe in a contemporary a simple method of reducing by simply taking the negative direct from the fixing bath and placing it where the air can have

full access. In mild cases fifteen minutes' exposure to the atmosphere is sufficient to tone down the excessive density of the high lights, in extreme cases the treatment may run into hours; but, however long or short the time may be, reduction proceeds on precisely the same lines as the ammonium persulphate method, *i. e.*, high lights first, deep shadows last to be affected, till the desired result is obtained. In prolonged treatment it may be necessary to occasionally immerse the plate for a few minutes in the fixing bath, in order to prevent it drying.

In this connection I might mention also a simple method of locally reducing negatives. The method consists of carefully rubbing the places with a soft piece of leather and alcohol. A little powdered sepia or fine French chalk will accelerate the reduction, but this addition should be made with the greatest caution. For objects, such as white houses, or anything which reflects the direct rays of the sun, this particular plan can be recommended.

PERCY LUND.

June 1900.

I SPENT a few days recently in one of our English "playgrounds" or pleasure resorts, and was surprised at the number of people carrying cameras. I believe I saw nearly a hundred in the course of less than a week—all kinds, big and little, hand and stand. But the hand-cameras preponderated—while after that came the American pattern that shuts up into a black box. The old-style English bellows cameras were decidedly in the minority. I observed another point also, that is worth commenting upon, the manner in which the numerous photographers carried their cameras. By far the largest number had them in the hand, even one young lady on a bicycle adopted this inconvenient plan, and had consequently only one hand for managing her machine, a somewhat risky proceeding. A few swing their apparatus over one shoulder by a strap—greatly to the detriment of their shirt fronts. Not a single person adopted the alpine rucksack method, that I have so often advocated: the most convenient of all, whether for small or large cameras for short distances or long ones. But time will doubtless bring about a change in carrying methods, and it is quite certain that the rucksack system, which leaves hands and arms free, and needs no strap across the chest, will come into general use. Photography in the dark room has been enormously simplified, there is room for considerable improvement in regard to operations in the field.

The important change that is almost certain to revolutionize the photographer's kit is the steady improvement in celluloid films, and the more general adoption of cut films, for the rolled films are a nuisance in development no matter what the makers say about them. But no films made as yet are really equal to the glass plates, though I believe we shall not have long to wait for a great change in that direction. It appears that cut films are sliced from a block, whilst roller films are coated on glass. To this difference in preparation, according to Mr. A. Haddon, who spoke recently before one of the London Photographic Clubs, the defects of flat films may be traced, because the pyroxylin was imperfectly washed. He had recently visited a smokeless-powder factory, and found that the nitrated sawdust from which it was prepared was washed with hot water for a fortnight in order to entirely clear it from acid. He firmly believed that no user of pyroxylins for photographic purposes went to this trouble, and the consequence was, acid remained in the film and set up decomposition. Cotton-wool was used for making the pyroxylins, and it consisted of a series of minute tubes, so that the amount of washing necessary to clear them was immense. In the roller film, where of course, the same state of things might originally exist, the solvents used tend themselves to remove by decomposition that which, left in the other film, caused its early deterioration. However, a few months will, I firmly believe, show the world a change in film photography. The Secco Film Co., Wellington and Ward, and the newly established Thornton Film Co., are each hard at work endeavouring to perfect their particular films, and it will be a matter of astonishment if important improvements are not made very soon.

From films to printing processes is but a step. Let me say a word or two upon this very vital question. The failings of photographs from a pictorial point of view are usually accentuated by the indiscriminate choice of a printing method. To choose a particular paper because it suits the subject seems to be the exception, while the rule is to take any paper that the photographer has by him, that the dealer offers, or that suits the negative. If a thin negative the photographer will print it in P. O. P. or bromide; if dense in carbon or platinum. To-day rough papers may be in fashion, to-morrow smooth, last week brown tones, next week purple tones. And so the thoughtless photographer follows fashion, instead of exercising his own judgment, and, just as it happens, prints his snow scenes in sepia, woodland views in red, or portraits in green. With him it might truly be said that photography is not an art, but only a mechanical process. Now each subject should be considered separately; where doubt exists, one or two experimental prints ought to be made, not only upon different papers, but with various depths of printing. If this is conscientiously done, far better results would be seen from men whose manipulative capacity is superb; but who seem to think that handwork is the only thing, and headwork does not count. A point in reference to prints was recently raised by Mr. James Craig, before the Edinburgh Society. He took up a brief for vignetting, now almost an obsolete style. "It is a fact", he said, "that in the ordinary course of vision we are constantly looking on vignetted pictures, and it is only by looking from a port-hole that we can do anything else. Even good paintings which are not apparently vignettes are so in the effect obtained, for, enough they seen to fill the square frame up to its corners, the feeling of intelligibility (which is at times not too oppressive, even in the centre), fails entirely as the margins are approached. It would, of course, be as foolish to

recommend the universal adoption of the vegnette as it was to entirely veto it, but there can be no doubt that many photographs, unpresentable on account of distracting or unbalanced marginal matter, may be rendered perfectly delightful by resorting to a method of treatment to which no natural or honest exception can be taken."

Turning to matters relative to the Laboratory, a method of staining prints of green tone is recommended by J. Raphaels, in a foreign contemporary. It is as follows :—

Mis : Water	100	parts.
Gallic acid	5	„
Acetate of soda	10	„
Alcohol	25	„

Expose gelatine-chloride paper from a fourth to a sixteenth of the time necessary to obtain an ordinary print, and place it in the above mixture, face upward. Develop until the print is somewhat stronger than it is to be when finished, wash and fix in a 10 per cent. solution of hypo. When washed and dried, the print is of an agreeable green colour.

The latest in lenses has just been put upon the market by Messrs. Voightlander. This instrument works at F 2. 3, a marvellously large aperture, and another novel feature is found in the mount, which is of magnalium, an alloy of aluminium and magnesium, very much lighter than brass, and having sundry other excellent points. It is so hard that sheet aluminium can be cut with a magnalium knife.

PERCY LUND.

EXTRACTS.

Practical Colour Work for Amateurs.

By A. E. Smith.

PART II.

Now for the practical part. What apparatus do we require ? Of paramount importance is the set of screens for making our three negatives. It is essential, if the finest results are aimed at, that they should be carefully adjusted for the plate they are intended to be used with. This need not, however, trouble those to whom a little preliminary expenditure upon materials is of no moment, as a set of Carbutt's colour screens, with instructions for use, may be obtained from Penrose and Co., 8 and 8A, Upper Baker Street, London, W. C., for a guinea. A set adjusted for use with the Cadett "Spectrum" plate may be procured from Sanger Shepherd and Co., 5, 6, and 7, Gray's Inn Passage, Red Lion Court, Holborn. This firm also contemplate supplying materials for printing lantern slides in the three primary colours of the artist. From A. Lumière et Fils, Lyons, France, screens for use with their well-known plates can be purchased, and from the Photochromoscope Syndicate, Clapham Common, a special camera back, complete with screens and dark slide, is obtainable, also an ingenious instrument called the "Kromskop," the invention of Mr. F. E. Ives, whereby the monochrome transparencies may be viewed in colours by the blending of the primary coloured lights, using day, or artificial, light as the illuminant. A simple triple lantern for projecting the colours upon the screen, in which the light from one lime is made to simultaneously illuminate the three lanterns, is also procurable. These instruments are very low in price, yet beautifully made, and scientifically perfect.

This completes the list of materials commercially obtainable, with the exception of the ruled screens for Dr. Joly's process, which may be procured from the Natural Colour Photo Co., 12, Great Brunswick Street, Dublin, or from the London agents, Messrs. Newman and Guardia, 90 and 92, Shaftesbury Avenue, W.

Though a three-colour process, this method requires only one negative, from which a single lantern transparency is printed upon an ordinary lantern plate. It is remarkable for its extreme simplicity, requiring, as it does, no special apparatus beyond the screens, which are sent out in two varieties, one for taking the negative, the other for use as a cover glass for the lantern slide. The latter screen, when held to the light, appears quite colourless ; but, in reality, it is ruled with alternate transparent lines of red, green, and blue-violet. They are, however, so fine that it is impossible to distinguish them with the naked eye, and they all blend together, forming a white light, because, as before explained, these are the three primary colours of which white light is composed.

The negative, or taking, screen is ruled in a similar way, but the colours are slightly different. It is placed in the dark slide of the camera, with the ruled surface in contact with the film of a Cadett "Spectrum" plate, a yellow, or orthochromatic, screen being inserted in the lens to equalise the exposure required for the different coloured lines. In this way it performs the work of the three screens, which are used when three separate negatives are made ; that is to say, one line passes those colours required to be recorded in the red sensation negative, the next passing those for the green, while the third looks after the blue-violet. So that we have, as it were, three negatives of varying densities, not on three plates, but upon one plate, huddled together, so to speak, in very fine strips, side by side, but not overlapping ; first a slice off the red, then a cut off the green, and next a strip off the blue-violet, commencing again with another piece off the red, another bit off the green, and so on in the same order right across the plate.

The lantern slide, which is made from this negative by contact, is, obviously, also made up of lines of unequal densities, and the viewing screen is bound up in contact with it, film to film, so that the red lines fall upon those representing the red sensation positive, the green on the green, and the blue-violet upon those comprising the blue violet positive, when the original colours will be found to appear with great fidelity.

The reason for this is easily explained. Supposing, for example, our positive depicted some scarlet geraniums and yellow calceolaria, the space occupied by the geraniums in the monochrome slide would be made up of alternate lines in sets of three, the first nearly clear glass, the next two being nearly opaque. In the parts representing the yellow calceolaria they would alternate thus—first two clear, and the third opaque, and so on, each set of three lines recurring in the same order. When the ruled screen is bound up in position, the geraniums will appear red because the green and blue-violet lines are stopped out by the opaque lines in the positive monochrome

transparency. The calceolaria will be yellow because the blue-violet lines are stopped out, leaving only the red and green lines, and we know that red and green lights blended produce yellow. Were the violet lines left in, the calceolaria would be white.

Let me here mention that, although we are dealing with positive colour transparencies, that are viewed by transmitted light, we are not superimposing any colours, but are obtaining our results by the blending of coloured lights, hence the reason for ruling the viewing screen in the primary, or fundamental, colours of the solar spectrum.

It might be supposed that the result would look rather coarse, and the ruling conspicuous, but such is not the case. The lines are so extremely fine that, when the picture is viewed at a distance of eighteen, or more, inches, with the naked eye, they entirely disappear. The slides can be thrown upon the screen by an ordinary single lantern, and if they are not shown too large, and not viewed too close, and thrown just a trifle out of focus, the effect is charming in the extreme. The process is admirably adapted for still-life subjects, such as flowers, fruit, bric-a-brac, natural history specimens, etc., and, as far as colouring is concerned, difficult to surpass. Moreover, its simplicity renders the proportion of failures very small. Of course, it is not necessary to have a separate viewing screen for each slide. Two will suffice to show any number of pictures, as while one screen is in the lantern, the other can be fitted to another slide, and fastened with clips. They are not, however, so expensive as might be imagined, and are sold as low as thirty shillings a dozen.

Having now described all the apparatus commercially available for lantern and transparency work, I must leave my readers to judge for themselves which method of producing pictures in colour is best adapted to their requirements, and to select their materials accordingly.

As promised in the early part of this paper, I shall now detail my own methods of working, and endeavour to show how colour photography may be carried out without any additional apparatus beyond a camera front of the simplest description, so simple that it should not be difficult for anyone at all handy with plane, chisel, and fret-saw to make; but even this might be dispensed with, reducing our outfit to a set of screens, or light filters, and the necessary materials for printing lantern slides and paper prints.

Doubtless many who contemplate adding colour work to their photographic repertoire will prefer to purchase their screens from one or another of the sources previously mentioned. Still, there may be others, equally enthusiastic, to whom the outlay of a few sovereigns is a matter for consideration, and it is for their benefit that the concluding portion of this article will be devoted.

By way of a little preliminary encouragement, let me mention that all my own work has been done with a Lancaster's Extra Special camera, using Wray's R. R. lenses, and home-made light-filters, the results secured being satisfactory in the extreme, in fact, they could not be better had the screens cost half a sovereign or more each.

Now there are two ways of making our red, green, and blue-violet sensation negatives, namely, taking all three upon one brand of plate, sensitive to the whole length of the prismatic solar spectrum, that is to say, sensitive to all the colours to be found in nature, such as the Cadett "Spectrum," and Lumiére's "Panchromatic," the other by making them upon different brands of plates, sensitive only to those colours required to act in the several negatives. In the second method the plates used are as follows:—For the red sensation negative a Lumiére orthochromatic, Series B, sensitive to red and yellow; a Lumiére orthochromatic, Series A, sensitive to green and yellow, for the green negative; and an ordinary, or unorthochromatic, plate, such as the Ilford ordinary, for the blue violet sensation negative. One advantage that must recommend the latter method to the beginner is, that the plates may be developed in plenty of light, the ordinary ruby lamp being used for the green and blue-violet negatives, a green glass being substituted for the ruby in developing the red negative, Lumiére's B plate being insensitive to green. With a Spectrum plate hardly any light is permissible for development. A safe light is, however, sold for this purpose; but, as it practically absorbs all the solar spectrum, little light can come through it.

The plates are, of course, exposed in the ordinary dark slide of the camera, which should preferably have three backs, in order to save time in changing the plates. The ideal method, however, is to use the Cadett "Spectrum" plate in a special camera, which permits of the three negatives being simultaneously made at one exposure, side by side, upon one plate. In this way we get our three negatives correctly exposed and evenly developed. Any movement of trees, or clouds, in a landscape is equally recorded in each negative. Though Mr. Ives has designed and used such a camera, it is not, I fear, likely to be placed upon the market. Messrs. Sanger Shephard and Co., however, make an instrument which practically accomplishes the same end, the only difference being that the negatives are made upon separate plates, but of the same brand, carried in different parts of the camera, so that they can all be developed in one dish. But I am digressing from my promise in discussing apparatus here. We are going to work on the cheap, so must be content to let landscape work severely alone, excepting in perfectly, calm and still weather.

If the Spectrum plate be adopted, we shall require red, green, and blue-violet light-filters; but these are not, as popularly supposed, the same as are used for viewing results in colour by blending the three primary coloured lights, but should, as far as possible, conform to the requirements laid down by the Clerk-Maxwell colour curves. To explain, supposing we desire to reproduce an object in colour by the blending of our primary lights with the aid of a triple lantern. Let us imagine it is the solar spectrum itself we wish to reproduce. What do we require to enable us to mix these coloured lights upon the lantern screen in such proportions as to imitate the original in colours? Three transparencies, or lantern slides, of such varying densities and gradations as shall stop out just that portion and quantity of the three primary lights, or fundamental spectrum colours, that is not required in forming the colours of the solar spectrum. Let us look for a moment at the diagram of the spectrum on this page. If this can be compared at the same time with a coloured chart, which may be found in almost any public library in nearly every standard work on light, my remarks will be more easily understood.

The curved lines drawn in the form of three little hillocks indicate the Clerk-Maxwell colour mixture curves, and from them we readily learn what portions of the spectrum should be photographically recorded in our three lantern slides if we are to obtain a correct colour reproduction on the lantern sheet.

The gradation of the slide printed from the blue-violet sensation negative will, obviously, be opague from

the red at A to green at E, at which point opacity will gradually give way in the proportion indicated by following the curve to its extreme height at B L (short for blue-violet), which will be represented by clear glass, descending again, with corresponding increase in density, until all transparency disappears at H. Similarly, with the green positive we shall find no light able to come through it until we get to the red just beyond C. Here transparency will increase in proportion of the steepness of the curve, until clear glass is reached at the summit, midway between D and E, gradually descending, with corresponding increase in opacity, until half-way between F and G, where no further green light can get through to the screen. In a similar manner the red positive should be transparent at midway between C and D, gradually increasing in density on either side until opacity is reached at A and E.

Obviously, then, to procure these transparencies, we must have a set of three negatives, which shall have been made through screens, or light-filters, which allow only these portions of the spectrum to act during the exposures for their respective negatives, that is to say, the red screen should pass all colours from the red end of the spectrum to E in the green. The green filter all colours from just beyond C in the red to midway between F and G in the blue, while the blue-violet screen must transmit the colours lying between E in the green and the violet end of the spectrum.

This the screens used for viewing positives by combining the primary lights, would not do, as, being too deep in colour, they would individually cut out too much of the spectrum. The colours recorded in the negatives must, so to speak, overlap according to the proportions laid down by Clerk-Maxwell, or we shall not be able to satisfactorily reproduce our subject in colour. For instance, yellow must be equally recorded in both the red and green negatives. Reference to the illustrations, on page 292, will show that the yellow calceolaria is comparatively transparent in both the red and green pictures, so that when they are backed up with their red and green glasses in the lantern, and projected upon the sheet, they appear yellow because the red and green lights are present in nearly equal proportions. Therefore, it must be plain to everyone why screens used for lantern projection cannot be used for taking the negatives. This also explains why separate screens are necessary in the Joly process for taking the negatives and viewing the positives.

Now to make our screens. The materials required are few and simple, comprising one ounce of Nelson's No. 1 gelatine, an ounce or two of Mawson's negative collodion (uniodised), a bottle of Higgins' photo-mounter, some paper strips, a few aniline colours, and some glass.

The glass should be what is known as patent plate, and can be obtained from any glazier or glass merchant, excepting, possibly, in the very small country towns; but even there it could be procured to order through the local glazier. A great deal of unnecessary fuss has been made about the necessity for using optically worked glass for colour screens; but the writer's experience is that thin patent plate is practically optically plane on both sides, that is, each side is perfectly level and parallel, in fact, it could not be improved, in all probability it would be spoiled, were it sent to an optician to be "worked." Still, if any prefer it so prepared, it can be procured from Penrose and Co., squares 2 inches by 2 costing four shillings a piece, and as six pieces are wanted for a set of screens, such as we are about to make, the glass alone would cost 24*s.*, whereas the same quantity of thin patent plate can be obtained, cut to size, for a few pence. I have paid as little as two pence for six pieces, 2 by 2.

For the colouring matter it is sufficient to purchase a few pennyworths of commercial dyes, which I have found admirably adapted to screen making. We shall require three one-penny packets of Judson's green, one of violet, one of yellow, and a sixpenny packet of "Diamond" scarlet for *cotton*; in all, eleven penny worth of colouring matter, sufficient for a hundred or more screens, and which may be purchased at almost every chemist's and oil shop. These require to be made up in solutions, as follows:—Dissolve the penny packet of Judson's violet in one ounce of boiling water, the yellow in another ounce of boiling water, and two packets of green in one ounce, and the third in another ounce of hot water. The sixpenny packet of "Diamond" scarlet will be found to contain the dye and mordant in separate packets. Make a stock solution of each by dissolving in two ounces of boiling water. For use, take half an ounce of each, and add two ounces of water.

We are now ready to commence our screens, which will be found a very easy task if the following instructions are closely adhered to.

For the red screen, take a piece of the patent plate glass, and carefully clean with a little ammonia. Hold the glass on the tips of the fingers, as shown in illustration, and pour on sufficient collodion to cover the plate, as indicated by the dotted lines. With a slight movement of the wrist, the collodion should be made to flow to corner No. 1, then, following the edge of the plate, to corner No. 2, and along the top edge of the glass to No. 3, the surplus being finally poured back into the bottle from corner No. 4. With a very little practice this operation may be performed in a few seconds, and the quicker the better, as the collodion sets very quickly. Coating should be preferably done by daylight, owing to the fact that collodion is highly inflammable. It must be kept in a glass stoppered bottle, or it will get thick, and require the addition of a little ether before it will flow easily over the plate. As soon as the glass is coated, it must be allowed to stand for a minute or so, until the collodion film has assumed a leathery appearance, when it is placed glass side down, or standing on its edge against a bottle, in a basin of clean water, where it should remain until all greasiness has disappeared, which is known by the water flowing freely and evenly off the film when withdrawn from the water, which it generally does after about five minutes' soaking. The plate is now immersed, collodion side uppermost, in a small porcelain dish—lantern size is convenient—containing a couple of ounces of the "diamonds" carlet dye solution. In a very few seconds the film will turn yellow, then orange, and finally a pale ruby. When this stage is reached, rinse slightly in clean water, or under a tap, to remove the superfluous dye, and set up to dry, which may take about ten or twelve hours, after which time the coloured film will be found to have lost its leathery appearance, and to lie quite smoothly upon the glass. Great care must be exercised to avoid touching the collodion film whilst wet, as it might easily be pulled off the glass.

Another plate is treated in a similar manner, and, when dry, the two are cemented together, film to film, by the application, on the point of a pocket penknife, of a small quantity of Higgins' photo-mounter. A very little will suffice. Too much would result in the screen being spoiled, as, when the two glasses are pressed together, it would spread between the films, and destroy transparency. Allow half an hour for the paste to set, and then bind the

two glasses firmly together with paper strips, just as you would bind up a lantern slide.

For the green screen coat another piece of glass with collodion, and immerse in the bath containing two packets of Judson's green in one ounce of water. Rinse and dry as before. Coat a second glass with a hot solution of Nelson's No. 1 gelatine (one dram dissolved in two ounces of water), the coating being performed in the same way as with collodion. When set hard, immerse in the yellow bath. Instead of the yellow dye, a solution of picric acid may be used. This must be kept in a safe place. Its properties are now well known to the Boers, who recently made its acquaintance under the title of lyddite. The two glasses are bound up in the same way as the red.

(To be continued).

Slow v. Rapid Plates for Landscape.

By Captain W. de W. Abney, C.B.

At a recent meeting of the Camera Club a question was raised whether slow or rapid plates gave the best gradation for landscape work. One experienced plate-maker, for whose opinion we have the greatest respect, maintained that a slow plate gave better gradation, while the writer maintained the reverse. Both sides had looked at it from a theoretical, or perhaps it would be better to say a sensitometer, point of view, and whether the two parties were at cross purposes or not is difficult to tell.

The writer maintains his opinion on the following grounds. If we place two plates, one a rapid and the other a slow plate, side by side, and expose strips of the two together by means of a movable mask to an artificial light, the first exposure being, say one second, the next two, the third four, and so on, till perhaps we have an exposure for the last one of eight minutes thirty-two seconds, and develop them, together by preference, we shall find, of course, that the slow plate will show a fewer number of strips with any appreciable deposit on it. We can, however, measure the opacities by any means we like, and we shall find that the differences in opacity of the successive strips are greater in the slow plate than in the rapid. The opacities of the most exposed strips in each may be different, and probably those of the rapid plate will be considerably less dense than that of the slow plate, but in each we shall probably find that there is one strip near the beginning which shows that the time has been too short for any deposit to be apparent.

Now, as the writer has often stated, the printing density of any negative is limited. We may take it that when one-fiftieth of the incident light is cut off by the opacity, that, and bare glass are the limits that will print on a paper such as platinum. If, then, we take the number of strips between these values as found on the rapid and slow plates, we shall find that the number of intervening strips in the rapid plate between these values is larger than it is in the slow plate. This means that a greater difference of exposure is rendered printable in the former than in the latter, that is to say, bigger differences in the lights of a landscape will be shown in a print by the former than by the latter.

It was explained by the opposition that an exposure might be given to a plate far exceeding the "correct" one with the slow plate, but not with the rapid, and with the former a negative would still be obtained which would give the same perfection of print as if the exposure had been correct. The "straight part" of the curve, which on Hurter and Driffield's plan is assumed to give the correct exposure, was stated to be the reason.

The writer states once again, as he often has before, that the exposure lying on that straight part is only a portion of that of use to the photographer, but that the part which indicates small exposures and which is not in straight line is equally useful.

What the photographer requires is bare glass to an opacity, cutting off, say, one-fiftieth of the light and that is not obtainable on the straight part of Hurter and Driffield's curve (except in very rare plates perhaps). In any case the gradation is, from these experiments, far better in the rapid than in the slow plates, provided the above opacity is obtainable in the former, which is not always the case.

A striking instance is one that is afforded this year in the work of a distinguished amateur who photographed in the Alps for a good many seasons. Last year his snow views with low, level foregrounds were rather hard, and what they would have been had he not been an expert one can scarcely say. The contrasts were too harsh, and there was a want of detail in the highest lights and in the dark shadows. This year the prints are delicate and full of half-tone and detail throughout. The negatives in both years are really good negatives, but last year's too dense. The amateur confessed that this year he had used much more rapid plates than last.

This experience is also the writer's on practical as well as theoretical grounds. But when using rapid plates care has to be taken that they will give sufficient density in the highest lights, which, as before stated, is not always the case. It may be remarked that if plate-makers would use sufficient iodide in the emulsions equal rapidity can be obtained, but with an increase in density. Plates made of pure bromide are apt to suffer in density-giving quality if their rapidity is pressed to a maximum. It is, perhaps, somewhat against the use of a rapid plate that latitude of exposure is a great deal more wanting in it than with a slow plate. It will not bear five or six times the correct exposure, for it is apt to begin to show reversal, and then the high lights become feeble and bad.

This again is specially the case with pure bromide, and is not so much the case when iodide is present, even in small proportions. For hand exposures a very quick plate is difficult to use for reasons which are quite apparent.

An exposure of a duration much less than a quarter of a second it is difficult to give by hand, and if the proper exposure with $f/16$ for a view with such a plate is one-fiftieth of a second to increase the exposure to a quarter of a second means diminishing a stop to nearly $f/60$, which is the limit to which a stop should be taken if diffraction phenomena are to be avoided. A plate which with $f/16$ requires one-tenth of a second is still a rapid plate under the same conditions of lighting, and here the stop need not be reduced beyond $f/32$ to bring the plate into the category of those which are suitable for hand exposure.

But why use the hand at all? The stand camera can have a shutter attached just as well as can a hand camera, and one photographer we know, who is also a celebrated painter, realises this, and hence gives shutter exposures; most of his productions are of rare beauty and full of delicacy, and he always uses a brand of rapid plates.

When copying a map or a plan the slowest plate obtainable is to be recommended, for the very reason that it gives great contrast in rendering black and white, but

our advice to the landscape photographer is to use a quick brand, when once he is satisfied as to the sufficiency of their density-giving powers, in preference to all others.

When a variety of landscape is to be met with, and when grey sky and no sunshine illuminate the picture the slow plate will be the better kind to employ, but with most it is an article of faith not to photograph under such conditions, though it is one of the favourite conditions which the painter likes. There is reason for this, as the painter has colour to deal with, and the photographer has not, and a cloudy day when colour is to be depicted is more favourable for effects of colour than when all is more or less deprived of hue by brilliant lighting. The difference between a high light illuminated by the sun and that merely by a grey sky is immense, while the shadows which are usually illuminated by the sky in both cases remain not far different. The rapid plate will therefore give a flatter picture with the grey sky illumination. The drift of these remarks will be seen to be that with hand cameras always use a rapid plate, and with stand cameras use them as a rule, but keep some slow plates for special purposes. —*Anthony's Photographic Bulletin.*

The Best Developer.

BY " THE PRODIGAL. "

Having now reduced the speed and exposure factors to constant units we came at last to the question with which we started— which is the best developer for bringing out perfectly the effect of correct exposure on plates of maximum sensitiveness. Unfortunately the reply is not as precise as the questioners would like it. All that we can say is that all developers are equally good in the case set forth, though some have qualities which distinguish them from others and make them valuable in special cases. For example if the suppositious plates be developed skilfully with hydroquinone (quinol), pyro or metol, the finished negatives will show the same amount of detail in the high lights and shadows, but the quality of the negatives and of the final print will be different. While the quinol developed plate will be characterised by brilliancy, the effects of metol will be a tendency to softness of gradation.

That the fact is as stated a moment's consideration should show. In the exposed sensitive film we have a light-painted picture varying chemical intensity. In the highest light the greatest number of silver bromide molecules are decomposed, in the middle tones there are fewer loosened particles and in the deepest shadows there is little or no disbonding of the haloid salt. If then we pour a developer on the plate, we shall have a copious deposit of metallic silver where the light has acted most strongly and decomposed most largely the silver bromide particles; in the secondary lights the quantity of reduced silver will be less; and in the deepest shadow there will hardly be any reduction at all. But the manner in which the reduction is effected will vary with the different reagents employed. In the case of quinol, and in a lesser degree with pyro, the reduction will proceed in a leisurely fashion : first the lights, next the half tones, and finally the shadow details will be precipitated. But with metol and its congeners the case will be quite different: a few moments after the application of the developer the lights and half tones of the image flash up almost synchronously and the shadow details follow close behind. Now it must be obvious that the difference in the manner of the appearance of the image must affect the relative strength of the half tones. Assuming, as the most reasonable theory, that the growth of density is caused by electrolytic action, the leisurely type of developers must ensure a steeper gradation between the several tones. The first lot of reduced silver particles reduce and take to themselves as many more before the reduction in the half tones commences, and as the growth in density by micro-electrolytic action is in geometrical progression, the gradation marked and steep. But with a simultaneous reduction of lights and half tones the difference in gradation is marked only by difference in the quantity of reduced silver, and the growth in density is in arithmetical progression with softness as the result.

With correct exposure then the question of which is the best developer will depend on the effect desired. If we want for any reason to strengthen and accentuate the difference of gradation of tones in the subject, we will find the slower working developer the best; and, conversely, for softening natural harshness of chiaroscuro metol and amidol will be the best.

This for correct exposure which alone we have been considering hitherto. But when under or over exposure comes into play, the matter is very much simplified. As the tendency of over exposure is towards flatness and lack of a sufficient interval between the tone values of the picture, it follows from what I have shown above that those developers which increase contrasts will be the best. And, as a matter of fact, accumulated experience has shown that quinol, and in a minor degree pyro, give better results than the newer reagents whose characteristic is rapidity of action. By a parity of reasoning metol and amidol are indicated for under exposures, and daily practice supports theoretical teachings. These reagents do not unveil any more detail than the slower developers, but they give softness when the tendency is the other way.

This last brings us to the real motive which so often prompts the query—Which is the best developer? In most amateurs' minds there is a vague impression that, however rapid an exposure may be, the plate, if it be one of the extra-rapid type, will register the details of darkest shadows, and all that is wanting is a developer which will bring out these shadow details in their relative intensity to the high lights of the subject. Unfortunately this impression rests on a fallacy. In the manufacture of ultrasensitive plates we have gone as far we can go safely, and any attempt to overpass present limits will assuredly lead to fog—not partial fog, which, in certain conditions and when confined to the shadows of under-exposed plates is sometimes valuable—but general chemical fog which in effect is equal to the uniform exposure of a plate to light and is rendered evident by a general darkening of the film on the application of the developer. And there is no developer, and there can be no developer, which, under existing conditions, will bring out more shadow details than the reagents at present in use. The feeling that if the developer were just a little stronger, it would help to break the bonds of the haloid salts of silver which have been only feebly impressed by the weak light of the shadows, is one that requires summary dismissal. We know, thanks to the brothers Lumiere, exactly what must be the chemical composition of any substance to enable it to act as a photographic developer and we can, acting on those principles, give to the world new developers almost daily; but unless we discover some way of preparing a sensitive surface very much more refractory to reduction

where the light has not acted, while retaining the degree of sensitiveness already attained, an increase of reducing power will be anything save an unqualified blessing. A stronger reagent would only reduce the silver haloid not acted on by light, failing thus in the main qualification of a good developer. Even with the developing substances now employed, it is possible to prepare certain baths whose reducing energy exceeds the limits offered by the extra rapid plates of the present day. In fact with baths of metol and caustic potash, or of amidol and caustic alkali the reducing energy obtained is too great and such as to fog in every case, in a greater or lesser degree, the sensitive coat.

In discussing the comparative value of developers I have not considered such point as economy and possibility of frequent use. These are matters which would have lengthened this paper to an inordinate degree, and Mr. Water D. Welford has already dealt with this aspect of my subject thoroughly. I am not such an extensive worker as he is, and consequently the pecuniary values of developers has not yet appeared in a sufficiently attractive form for investigation.—*Journal of the Photographic Society of India.*

ACETYLENE

As an Illuminent for the lantern.

By J. C. H. Wallsgrove.

It has been suggested that an article on acetylene for the lanternist might be useful to some of the *A. P.* readers.

For the benefit of those who have not tried the light, and don't know much about it, it may be useful to give a description of the parts of the generator, also the method of using it.

Acetylene is a gas produced by the action of water upon the chemical substance known as calcium carbide. It burns with a brilliant white light. The generator I use is an "Incanto"—the remarks will therefore apply to this type. The parts of the generator are—

The outer vessel, standing on three small supports. In the interior is an upright pipe, reaching to within a few inches of the top. This tube leads to a small cooling chamber at the bottom of the vessel. From this chamber leads off delivery or outlet pipe, which is fixed to outside of vessel, and its outlet is furnished with a tap.

The other part of generator is the inner vessel, inside of which is fixed a container chamber. The container being free, is easily removed for charging and cleaning; it is held in position by a ring of wire round its top. Over the container is a brass cap, which is held in position by a cross-bar and screw. Between the top of container and cap is an india-rubber washer to ensure a gas-tight fit. On the top of the inner vessel is a small pipe—which has a tap—connecting the small container chamber with the vessel by which it is surrounded. There is a small safety outlet also on the top of inner vessel. This is for conducting any excess of gas to open air by means of flexible tubing.

Method of using the generator.—First, see that all the taps are properly closed; then pour water into the outer vessel, taking care that none gets down the upright tube—until it reaches the mark indicated by a patch of paint. Put this part on one side. Into the container place the carbide, replace the cap, and secure it by its fastenings. See that the little tap of connecting tube on the top is closed. The inner vessel is now put into the outer one, on the water. Before it will sink down, it is necessary to open the tap of outlet or delivery tube. When the inner vessel has settled down, the outlet tap is shut. The apparatus may be left in this state for any length of time, as the little tap of connecting tube prevents the air from escaping from container-chamber, so that the water, being unable to rise, cannot get at the carbide. The generator should now be connected with the lantern fitting, by means of the I. R. tubing. It is as well to have the tubing bound on the lantern fitting, so preventing any possible escape near the light. To start the generator working, all that is necessary is to gradually open the little tap on top of inner vessel, the confined air at once escapes, the water rises, and coming in contact with the carbide, gives off the gas. Frequently when this tap is opened the inner vessel sinks a little lower, and the water rises up and nearly covers it. I take advantage of this by scooping a little water on to the cap sufficient to cover it. Should there be any escape of gas from imperfect contact of cap, it is at once recognised by little bubbles rising through the water; if such is the case, give the screw an extra turn or two. As the gas generates, the inner vessel gently rises. When it has risen so that its top is about three inches above the outer cylinder, the delivery tap, and the tap of fitting should be opened, in a few seconds the jets may be lighted. The light does not get its full power for about a minute, owing to a small quantity of air being mixed with the gas. The light is now ready for the lantern. When put in, it should be centred by drawing backwards and forwards, and up and down, until an evenly-lit disc on the sheet is obtained.

If there is likely to be a long interval during an exhibition, when the light will not be required, the little tap on top of generator is turned off, and the gas burnt out, or the lights turned down, and any surplus gas passed to the open air through the safety tube and rubber tubing. When once the generator is started, it works automatically—that is, when sufficient gas is generated, the container is lifted out of the water, and action ceases. As the gas is used up it sinks back again. A little moisture, however, is sure to adhere to the carbide, causing a small quantity of gas to be given off. It is this small quantity that provision has to be made for when the generator is not acting.

In passing, might I mention a useful contrivance I have adopted for setting up my apparatus lantern. and generator ready for an exhibition?

My lantern is a mahogany one, with metal lining. It has a wooden case for storing it in. To the bottom of the lantern is screwed a piece of wood, which just fits the bottom of box, but allowing for its being freely drawn in and out. A "bush" is let into this false bottom. The bush has a T screw, by which means the lantern is attached to the head and legs of my whole-plate camera. This arrangement allows the generator to work comfortably under the lantern. The storing case provides a table for the slide-box. The false bottom gives a ledge beneath the lens on which the slides may be placed after using. Two strips of wood screwed to the inside of storing box furnish guides for the false bottom, and also provide a means for keeping the lantern steady when being carried about. A few items from practical experience may now be useful.

If possible, the container should be warmed before charging with carbide. Store carbide in a dry place in her-

metically closing tins. It may be hammered or thrown on the fire without danger, but it is absolutely necessary to keep it perfectly dry.

For an hour and half show I generally put in 2 pounds carbide for a 3 burner fitting. At the close of the exhibition the water is thrown away, but the generator is left till next day to be cleaned, which should be done thoroughly.

When cleaning, the container is emptied, and any hard lumps of unused carbide picked out, these should be stored in a separate tin for a future occasion. The tap of the cooling chamber at bottom of outer vessel should be opened and any moisture drained away. The jets of lantern fitting should be scraped with a knife to remove the carbonaceous matter, which accumulates while the light is burning, then brushed with an old tooth-brush and blown through. The reflector should also have a good rubbing.

The gas has a "distinct odour," which is rather an advantage, as any leakage is at once detected. Don't look for an escape with a lighted match.

I have had the same lantern in use since the early part of 1897. There has never been a single breakage of condenser. The polish has blistered a little, and most of the lacquer has peeled off the top. It is generally considered that acetylene is a cool gas, but it gives off sufficient heat to cause trouble sometimes. During one of my exhibitions the piece of wood carrying the door at back of lantern was burnt away. The cause of this was owing to the opening between the wood-work and metal at back, being greater than at the cowl; this caused a stronger draught that way, taking the heat with it. It was cured by stopping up the opening with a piece of wood, after the damaged portion was repaired. The adjusting of the light helps materially in these matters. My method is—when the light has been centred—to turn it on full, then gradually lower it until the disc becomes tinged with yellow. At a point just above this we get a light of full power and brilliancy, which is not improved upon, no matter how high the flames are. It also prevents the waste of gas from "blowing through," and keeps down any smoke.

On another occasion I had trouble with the generator not being able to get a sufficiency of gas to give a full light. The cause of this was found to be that the little connecting tube on top of inner vessel had become choked with a black substance. Possibly this had accumulated, partly from the gas and partly when cleaning the generator. It was removed by means of a feeding-bottle tube brush, after which the generator worked as free as ever.

There is a popular idea that acetylene is very dangerous. I fail to see that it is any more so than ordinary coal gas, provided it be confined to its proper place, and the same care exercised with the one as with the other. —*The Amateur Photographer.*

Lantern-slide making for beginners.

BY PRIMROSE HILL.

VIII.—INTENSIFYING.—(*continued.*)

...ater dissolve about a teaspoonful of com... ...chloride), *or* ammonium chloride, *or* ...loric acid. Then add mercuric ...ive sublimate—N.B.—Poison) until you get a fully saturated solution. Then decant or filter the clear part for use only. [The addition of the salt, ammonia, or acid to the water is to assist solution of the mercury and also to make the mixture more stable. But if need be, plain water may be used for dissolving the mercury.]

In this mercury bath the plate is placed, and remains until it is more or less bleached. For slight intensification only a general slight greying is required. The plate is then very thoroughly washed in running water or in several changes, with frequent rocking of the dish. Thorough washing is essential if stains are to be avoided.

We now have about a dozen courses open to us for again darkening the plate. These give various strengths and colours, but to discuss them all would tend to confuse the beginner. We therefore select a few and refer him for fuller information to Chapter VIII of "The Perfect Negative."

(*A*) *Ferrous Oxalate Normal Developer* (see previous par. 52).—This gives a rich, black colour and full strength. Very useful for diagrams, maps, plans, architectural details, or any subject where a strong black-and-white picture is wanted on the screen. The plate should be well washed both before and after darkening in the iron developer with water just slightly acidified, *i. e.*, 50 to 60 drops acetic acid in a pint (20 oz.) of water. One great point about this process is that we can still further intensify by again bleaching and again darkening.

(*B*) *Ammonia.*—To 2 oz. of water add 20 to 30 drops of strong ammonia. Apply this to the bleached plate. We get a good, strong effect, but the colour is variable from a rich black to a reddish brown. A warm black is the usual result with most brands of plates.

(*C*) *Washing Soda* (*Soda Carbonate*).—This does not give such a strong result as the ammonia, and the colour is more often brown than black. It is sometimes a warm chocolate brown. The strength to use is obtained by dissolving 1 dram of washing soda in 1 oz. or $1\frac{1}{2}$ oz. of water.

(*D*) *Soda Sulphite.*—This compares closely with the last; the results are similar, and the strength of solution is the same. The difference generally is that the sulphite gives a rather weaker deposit and cooler colour.

(*E*) *Hypo.*—We may place a bleached and well-washed slide in a *clean* hypo bath. In this case the gain of density is very little, and generally the resulting colour is between a yellow and a red grey. It may at times be suitable for pictures of sandhills and similar subjects.

Speaking generally, a dilute, slow-acting darkener gives a warmer, redder colour than a strong, quicker-acting one, but this is not always the case.

In place of ferrous oxalate as mentioned in para. A, we may use several of the other developers, such as normal hydroquinone, ortol, metol, rodinal, etc.

(67) *Uranium Method.*—This is not only a strengthening, but is practically always a colouring method at the same time. The addition of density greatly depends on the length of time the intensifier is allowed to act. The colour, commencing with a black slide, changes gradually from black, brown, chocolate, sienna, to Venetian red. As the mixture does not keep well for very long, it is therefore best to mix a small quantity for immediate use, and then throw it away. Uranium nitrate or acetate, 10 gr.; water, 2 oz.; acetic acid, 10 drops; potassium ferricyanide, 5 gr. Prepare in the order given.

(*To be continued*).

COMPETITIONS.

(Open only to Members of the Society.)

SUBJECTS FOR MONTHLY COMPETITIONS.

July ... . Sunset.

August ... . Any moving object (Instantaneous).

161158
Madras-600 008

RULES.

1. *Two Special Competitions shall be held, in each year, in addition to a monthly competition.*

2. *The Committee shall select the subjects for the Special Competitions, and notice of the selected subjects shall be announced in the Society's Journal in February and in July of each year. The subject for each monthly competition shall be selected two months in advance by the members present at the monthly meeting, and shall be notified in the next issue of the Society's Journal.*

3. *Pictures, &c., competing for Prizes at the Special Competitions must reach the Secretary by the last day of January and of May, and those competing at the monthly competitions must arrive in time to be shown at the monthly meeting.*

4. *Prizes will consist of Silver and of Bronze Medals, and of Certificates of Merit.*

5. *Not more than one Silver and one Bronze Medal shall be given at each Special Competition, and one Silver and one Bronze Medal may also be given at these competitions for excellence in copying, enlarging, lantern slides, or any other special branch of photography. One Silver and one Bronze Medal shall be awarded half-yearly to the exhibitors who obtain the highest and the next highest marks respectively at the monthly competitions. The number of Certificates of Merit granted at each competition is left to the discretion of the Judges.*

6. *A member may receive only one Silver and one Bronze Medal in the special, and one Silver and one Bronze Medal in the monthly, competitions, held during the same year; but should a member who has been adjudged a medal be disqualified under this rule from receiving it, he shall be given a Special Certificate instead, marked 1st or 2nd Prize.*

7. *A Special Committee of three members shall be appointed Judges by the General Committee to carry out, subject to these Rules, all arrangements connected with the competitions.*

8. *The Special Committee shall be appointed after the Annual General Meeting in January, and shall hold office for one year, and any vacancy occurring will be filled up by the General Committee.*

9. *The Special Committee shall decide upon the merits of the pictures, &c., sent in for competition, and their decision shall be final. The system of judging the monthly exhibits shall be by awarding marks, a record of which shall be kept by the Judges, the marks being totalled and the results declared half-yearly. For this purpose, only the three highest marks awarded at each competition to each competitor shall be recorded, but not the aggregate marks gained by each for a number of exhibits.*

10. *If any member of the Special Committee is a competitor, the General Committee shall appoint a non-competing member to act as Judge at that competition instead of the competing member.*

11. *No exhibit shall compete twice, but pictures, &c., already exhibited elsewhere, may be sent in for the competitions.*

12. *Lantern slides sent in for competition shall be in sets of six, and shall be judged upon the screen.*

13. *The Special Committee shall not award any Prizes or Certificates, unless they consider the exhibits to be worthy of such distinction.*

14. *Each competing exhibit shall be the entire work of the exhibitor, and when sent in shall be accompanied by a Certificate in the annexed form:—*

> *"The (1) Arranging, (2) Exposing, (3) Developing, (4) Retouching (if any), (5) Printing and (6) Trimming and Mounting were done by me without assistance."*
>
> ————————————
>
> *Member, A. P. Socy. of Madras.*

15. *All pictures for the Special Competitions shall be mounted, and may, at the competitor's option, be framed but not glazed. Those for the monthly competitions need not be mounted, but should be trimmed.*

16. *Each competing picture should have a name or title, which should indicate the nature of the subject.*

17. *No competitor shall be allowed to send in more than six pictures to compete for any particular Prize, but the same member may compete in all branches specified in Rule 5.*

18. *The pictures gaining 1st and 2nd Prizes at the half-yearly competitions, and the best pictures sent for the monthly competitions, shall, when practicable, be reproduced in the Society's Journal.*

19. *To give up-country members an opportunity of seeing the competing pictures at the special competitions, the pictures shall be circulated to all members of the Society, not residing in Madras, who apply to see them. As this arrangement can only be carried out by the cordial co-operation of the members themselves, they are expected to forward the pictures without delay to the next member, and to send one of the accompanying post-cards to the Secretary, so that by this means the progress of the pictures may be traced.*

List of Members whose Dark Rooms are available for use by Members of the Madras Amateur Photographic Society.

E. MAENNIG, Buckingham House, Tranquebar.

MS5, 8, M211, MS4
MS4.5–6

NOTICES.

Members of the Madras Amateur Photographic Society are permitted to use this column free of charge for two insertions of each advertisement—all subsequent insertions of the same being chargeable at 2 annas a line. When an advertisement becomes liable to this charge, it will not be inserted unless a postal order or stamps to the value of the charge are previously sent, addressed to Graves, Cookson and Co., Scottish Press, Broadway, Madras. Advertisements received up to the 5th of each month will be inserted in the next issue of the Journal; those received after this date will be held over for the subsequent issue.

Subscribers, and others who are not regular dealers may make use of this column for advertisements by paying at the rate of 3 annas a line.

Rates of Subscription, Payable in Advance.

——	India, including Postage.	Europe, including Postage.
Twelve months ...	5 Rupees ...	8s. or Rs. 6.
Six months ...	3 " ...	5s. or Rs. 3-12-0.
Single numbers ...	8 annas ...	

N.B.—The Journal is issued on the 15th of each month, and is posted free to members of the Madras Amateur Photographic Society.

Entrance Fee, Rs. 5.—Annual Subscription *for Resident Members, Rs. 15; for Up-country Members, Rs. 12. Members joining after 30th June pay Half-year's Subscription.*

Candidates for Election—*should be proposed by one member and seconded by another; and they will be ballotted for at the following meeting.*

Ordinary Meetings—*of the Society are held on the first Friday of each month at 6 p.m. and members are at liberty to introduce visitors: meetings take place at the Museum, Egmore.*

Letters to the Editor—*should be addressed care of Messrs. Graves, Cookson & Co., Scottish Press, Broadway, Madras.*

Letters to the Honorary Secretary—*should be add[illegible] ed to Mrs. Leet Palk, Locock's Garden, Kilpauk, Mad[illegible]*

Letters to the Honorary Treasu[illegible] *ed to A. E. Lawson, Madras Mail Office[illegible]*

Communications regar[illegible] Journal—*should be addressed [illegible]*